DCoE September 2013 Webinar

Evidence-based Treatment and Prevention for Suicide and Related Outcomes

Welcome, and thank you for standing by. At this time all participants will be in the listen-only mode. Today's conference is being recorded. If you have any objections, you may disconnect at this time.

I would now like to introduce your host, Colonel Rick Campise. Sir, you may begin.

Good afternoon, everyone. Thank you for joining us today for DCoE's September webinar. As mentioned, my name is Colonel Rick Campise, I'm the Deputy Director for the National Center for Telehealth and Technology in the National (inaudible) region. I will be your moderator for today's webinar.

Before we begin, let's review some webinar details. Live closed-captioning is available through Federal Relay Conference Captioning. Please see the pod beneath the presentation slides. Today's webinar is hosted using the Adobe Connect and Defense Connect online platforms. Should you experience technical difficulties, which we hope you don't, please visit dcoe.health.mil/webinars to access troubleshooting tips.

There may be an audio delay as we advance the slides in this presentation. Please be patient as the connection catches up with the speaker's comments.

During the webinar, you're welcome to submit technical or content-related questions via the Question Box. The Question Box is monitored and questions are forwarded to our presenter for response during the Q&A session that will be held during the last half hour of the webinar. Our presenter and I will respond to as many questions as time permits.

DCoE's awarding of Continuing Education, or CE, credit is limited in scope to healthcare providers who actively provide psychological help and traumatic brain injury care to active duty service members, reservists, National Guardsmen, military veterans, and their families. To qualify for the receipt of CE credit from St. Louis University, you had to register prior to Tuesday, September 17th at 11:59 Eastern time. The authority for training of contractors is at the discretion of the chief contracting officer. Currently only those contractors with scope of work or with commensurate contract language are permitted in this training.

This webinar is approved for the following CE credit: 1.5 AMA PRA Category One credits. 1.75 CE contact hours for physical therapy and occupational therapy. 1.5 nursing contact hours. 1.5 social work CE hours. And finally, 1.5 APA credits for psychologists.

For complete accreditation statements, please visit dcoe.health./webinars.

If you meet the eligibility requirements and preregistered on or before Tuesday, September 17th at 11:59, please visit conf.swankhealth.com/dcoe at the conclusion of the webinar to complete the online CE evaluation and download your CE certificate. The Swank Healthcare website will open immediately following the webinar and remain open through Wednesday, September 25th until 11:59 p.m. Eastern time.

If you did not preregister, you will not be able to receive CE credit or a certificate of attendance for this event.

I will now move on to today's timely webinar topic, Evidence-based Treatment and Prevention for Suicide and Related Outcomes. I want to thank you for joining us to learn more about this very important topic.

An abundance of research evidence exists to support early suicide prevention and treatment. Existing studies identify the risk characteristics of the military population as a topic of considerable scientific and public interest. During this webinar, participants will, number one, gain knowledge about current research evidence related to early prevention and treatment. Two, learn differences in treatment for high-risk

populations. And three, recognize the challenges of evidence-based treatment and prevention strategies for suicide and related outcomes.

It's my honor to introduce today's presenter, Dr. Kerry Knox. Dr. Knox graduated from Northwestern University with a Master's in Anthropology and a Ph.D. in Biological Science. She currently serves as an Associate Professor in the Department of Psychiatry at the University of Rochester Medical Center in New York and was the founding director of the United States Department of Veterans Affairs Center of Excellence for Suicide Prevention in Canandaigua, New York, serving in that capacity from 2006 to 2012. Dr. Knox has a broad background and diverse experience beginning in cancer epidemiology conducting randomized control trials, which transitioned to graduate work in biological anthropology with an emphasis on investigating the relationship between social stress, especially aggressive behaviors, and reproductive suppression.

She completed her post-doctoral work in neurobiology and physiology, which continued this thematic interest, specifically through basic scientific research on the relationship between stress and poor outcomes.

Dr. Knox's work with suicide research and prevention began in 2002 with a National Institute of Mental Health grant dealing with suicide prevention and the United States Air Force, and continued in 2006 with another NIMH grant also dealing with suicide prevention in the Air Force. Fortunately she was just awarded a third NIMH grant that continues this line of research.

She's developed a novel methodological approach to studying the effectiveness of the sustained multi-faceted suicide prevention program as well as measures of implementation on this population-based prevention program.

Dr. Knox also maintains a strong secondary interest in intervention research, recently having received funding as the principal investigator on a fourth NIMH clinical trial planning grant study of the VA's 24/7 crisis line.

She possesses a demonstrated record of accomplished and productive research studies in areas of high public health relevance including suicide research in military and veteran populations and the lessons that can be learned and translated from these groups to the general population.

Before begin Dr. Knox's presentation, we would like to ask the polling question which is now shown on your screen. And we'll just give you a moment to fill that out. All right. Thank you.

I just want to say thanks for your participation, and welcome Dr. Knox.

Thank you, Colonel Campise, and thank you for that nice introduction, and it's a pleasure to be here this afternoon doing this presentation.

I'll get just started right away with some acknowledgments of the key collaborators that I've been working with over a number of years. Colonel Campise mentioned the Department of Veterans Affairs, which I've been with for the past seven years and have had multiple collaborators in that capacity, and in particular with the VA Office of Mental Health and Dr. Jan Kemp, who is the National Mental Health Program Director for Suicide Prevention and Community Engagement.

Colonel Campise also mentioned that my work in suicide did start in the Air Force and continues, and I continue to have multiple collaborators in the Air Force for over 13 years now.

And the University of Rochester Medical Center, where I'm on the faculty, has also been key in the work. We are certainly a national center that's known also internationally for our work in suicide research and prevention. And I've had multiple collaborators there over the last 13 years as well.

And as well I've been very fortunate to work with collaborators from many other universities, and all of these I will be referring to in more specifics as the presentation goes on.

So, just to review and to sum up on some of the – could I have the next slide, please – and I'm sorry, I didn't say this at first so I'll say it right now. The views expressed in this presentation are those of the presenter and do not reflect the official policy of the Defense Department or the U.S. government. This presenter has no financial interest to disclose.

Go to the next slide.

And this is just what I went over as part of the slide set, so I will just continue on with the next slide.

So the goals today, just to clarify them once more, is to discuss evidence for effective clinical and population-based approaches for the treatment and prevention of suicide and depression. And I really am splitting those out, the difference between treatment and prevention, because what I really want to talk a lot about is the integration of clinical and population-based approaches. I'm going to discuss the strengths and limitations of the current evidence. And I'm also going to provide you some examples of ongoing studies and projects, both clinical and population-based approaches.

Next slide, please.

Just a few suicide statistics. Some of you may be familiar with this, but over 38,000 people in the United States died by suicide in 2010, and it's the third leading cause of death in young people. Recently we do know that statistics have shown an increase in the population in the middle years of life, both in men and in women. And in particular, and I'm going to certainly emphasize this today, we know that there has been a very significant increase in suicide in the military over the last number of years. And to the extent now that's it about, for all the military services, about 24 per 100,000 deaths from suicide. These are primarily young men between the ages of 18 to 24, and we do think that some of this reflects the unwillingness or the hesitancy of this age group to seek help because it might hurt their career. Certainly that's an area of research as is the impact of deployment, and I will talk a little bit about those later.

But we do know that the deaths from suicide have exceeded deaths from combat, and so this is a very important population for us to be recognizing and to develop interventions and to evaluate their effectiveness.

If I can have the next slide.

I want to emphasize that I do take a public health approach to the research I have done in suicide prevention and other violent types of behavior, such as domestic violence. And the reason I do that, and I'm going to emphasize it many times today, is that it really requires including the health of individuals in addition to the health of population. And that may sound fairly easy, you know, like, of course we would do that, but it's actually very difficult. And that's one of the things I'm going to address in this presentation.

And the health of individuals, for instance, and groups depends a lot on social policies and programs, for example access to care, and on national, regional, and community efforts that are at once both coordinated but also diffuse. And, really, public health approach promotes the building of healthy communities, which includes emphasis on connectedness, and I'm going to talk about that later in the

presentation as well. It's something that I'm very interested in, is the role of connectedness, and especially in the populations that are really my interest of military and veteran populations.

And, you know, the other thing I think that's very interesting having worked in the realm of public health for many years, and in other different kinds of public health problems before I became involved in suicide research, is that public health now far exceeds the scope of traditional public health. It goes way beyond vaccinations and water cleanliness, even though while those remain very important things that we have to address. But what's really happened over the last ten, 12 years, if not more, is this emphasis on embracing some of the issues around both mental health issues and such that suicide and depression are both viewed as a public health problem. In 2004, Dr. Eric Caine and I, and Dr. Yeates Conwell, the three of us published a paper in the *American Journal of Public Health* entitled "If Suicide Is a Public Health Problem, What Are We Doing to Prevent It?" And I think that really captured the field at the time in terms of so much that we've done in other fields in public health, for instance, the epidemic of heart disease, has really required the engagement of both clinicians and public health scientists, including epidemiologists, in being able to address a very, very large problem. And essentially that's what we've been working in in the last number of years about how you actually make that happen on the ground in terms of operationalizing it.

If I can have the next slide, please.

So the challenges to the field have been, based on what I just said, is the translation of the research that we do into actionable items via public health policies. Research is wonderful, and certainly very valuable, but I think when we think about suicide, when we think about depression, when we think about other kinds of related outcomes such as interpersonal violence and family violence and other kinds of things, violent behaviors in general, that to be able to take the research we do and really translate that into something that on the ground is going to have an impact in people's lives, is really at the critical core of what I believe needs to be done in the field. And that just requires, again, the importance of integrating individual and population approaches. And, again, that may sound easy to do. It's been very, very difficult on many levels. Although there's certainly been advances in the time that I've been involved over the last more than a decade in doing that. But we still have those challenges, and I'm going to talk about those as we go on.

If I could have the next slide.

And, as I mentioned, my colleagues and I, Drs. Caine and Conwell, published in 2003 essentially focusing on the difficulty of doing this and the absolute need to do it, and most recently in 2013 we published another paper essentially saying where have we come and what is the way forward. And that was published as a chapter in *Population Mental Health*, and really reviewed the kind of progress that we've made and the kind of challenges that we have encountered.

So the next slide.

And from that paper I drew this graph, or this pictorial representation, I guess is more accurate. And I think this really helps us understand why there's so much challenge in this field. Because you have down at the bottom, and some of you may be familiar with this language, you know, really on the left side, accumulating risk until you get to these outcomes that share common risk factors, like suicide, motor vehicle accidents, and accidental poisoning and homicide. And then if you start down on the bottom with universal and selected approaches, you're really looking at that population level and, again, early preventive efforts that are focused on disruptive family factors, disadvantaged, economic and social factors, and because if you can change a lot of things in clinical settings, and if an individual then goes

back to these same kinds of really deleterious kinds of perturbations in their life, then it's going to be very difficult to maintain that change. And so at a population level we think about all these related kinds of factors, but then stacked on top of that is the emerging behavioral problems, mental health disturbances, school difficulties, and alcohol and substance misuse. And for those we often talk about selective and indicated intervention, and that's often where, at the clinical level, we've intervened. But I think we're reaching much more toward a way of integrating those two, and again that's moving us towards integrating population and clinical approaches or, using different language, integrating community with basically higher risk individuals that really are showing signs and symptoms. Whereas, when we're looking in the population or at communities, we can't always – in fact we often can't – really pick out those that might be at high risk without incorporating knowledge and research from the next level up.

And then we get into even the next level up in terms of indicated and clinical that really focus – very much focusing then on people when they're in imminent danger of dying by suicide or having these other kinds of outcomes that are very, very negative, obviously, and something we'd very much want to prevent. And those have certainly become characterized by individuals that end up in the legal system, and emergency room visits – I'm going to actually talk about that a little bit more during this presentation. And mental health and chemical dependency treatment contacts. And so all these things really represent a common way that we can think about preventing these related diverse outcomes.

So the next slide.

Just to give a little background, I'm going to go over these fairly quickly just so that we can get into some more very specific examples. Looking at evidence for clinical approaches for treating depression and reducing deaths from suicide. And I want to really talk about crisis lines as a first line of defense. Lithium and SSRIs, and go over very briefly the debate and why that's really still ongoing in terms of their effectiveness. Cognitive behavioral therapy, or CBT, and DBT, and I will talk very shortly about those. I'm going to spend, actually, some more time on talking about brief behavioral interventions for reducing suicidal behaviors, depression, and these other kinds of things that we're talking about. And one of the examples I'm going to use is combining the brief interventions with follow-up approaches, which is the last piece on this, of which there's been certainly some work done in that area, the importance that when people come into care, that if we send them back, and that then certainly loops back to the whole thing of sending them back into their communities. And if they're being sent back into the communities with the same kind of environmental exposure, such as family disruptions, that they come out of before they got treatment, then, in fact, there is not much confidence that we can expect that without some sort of change in coping skills or in intensive follow up until someone gets engaged with in-treatment long term. So the example I'm going to use is a project I've led up in the VA called SAFEVET, and it stands for Suicide Assessment and Follow-up Engagement Veteran Emergency Treatment.

So the next slide.

Crisis lines. I'm going to start by talking about crisis lines. Certainly the work of Dr. Madelyn Gould and her colleagues in community crisis lines, and you can see there, there is a national network. Some of you may be familiar with that in terms of community crisis lines. And that work was really groundbreaking when Dr. Gould first did it in terms of looking at actually whether this calling a crisis line resulted in positive outcomes. And one of the things that she and her colleagues looked at was not only suicidal behavior, but also looking at distress and whether it was reduced in callers to the community crisis line, and that includes depressive symptoms, feeling hopeless, anxiety, and feeling overwhelmed, and to see whether that distress is actually reduced from the beginning to the end of the call, and that was really very, very groundbreaking behavior. And very important to inform the current work that we're doing in VA suicide crisis lines.

The limitation of that work, and I certainly would like to say I was very fortunate to have engaged Dr. Gould in the VA crisis line research that we're now doing, and I'll talk about in a minute. But because callers to community crisis lines are essentially anonymous, so it's actually very difficult to study long-term outcomes, although Dr. Gould and her colleagues have been able to do some of that. But one of the important reasons that they looked at distress from the beginning to the end of the call was to get a sense of was it being effective immediately in reducing distress. Now those long-term outcomes, though, are really, really important, and in terms of the fact that crisis lines have really become a first-line defense against death from suicide and provide a lot of potential and opportunities to intervene at different stages when somebody is in distress. But the ability to study those long-term outcomes to see if we actually have an impact on their lives and ultimately on whether they die or not is absolutely, really critical.

So the next slide.

The other work that influenced our work in VA's crisis lines was by Brian Lasharra and his colleagues in Canada who investigated also the effectiveness of community crisis lines, and in particular, and this is important, is they compared models of helper behavior to actual practice in telephone crisis intervention. That is, if you train somebody, a responder or a counselor, in terms of how they actually are clinically approaching the call, then does that then actually translate into – how that happens – into a crisis situation. And it's, you know, it's more challenging because when somebody calls in crisis often you don't necessarily have the ability to spend a lot of time addressing a specific problem like you might do in psychotherapy.

Just to continue on, the evidence for CBT and DBT have been demonstrated. Certainly CBT, I'm sure many of you have heard of that and probably use it, has been demonstrated in several large trials by Greg Brown and his colleagues. And the effectiveness of DBT has also shown to be effective, but in particular in certain populations such as females diagnosed with borderline disorder. And those studies have been done first by Marsha Linehan and are also published.

So, moving on to the next slide.

The challenges to evaluating effectiveness in these types of clinical settings is that, especially with CBT and DBT, it's very time consuming to train and supervise clinicians, and many of you are clinicians and you know that on the ground that that's hard to do and hard to engage in yourself when you are at very busy practices and a lot of demand. The other issue, certainly, is the cost of randomized control trials, which is often considered the gold standard from a statistical point of view, and that really relates, then, of course, to the statistical power to find significant differences. And that's been a real challenge. I've been in this field of doing this for long enough to know that originally we – there was a lot of discussion among many interested parties, in terms of whether we should be, for example, even including suicidal individuals in any kind of trials.

And so part of this is what has evolved is that the need for developing new methodological approaches because a randomized control trial has the downside of, you know, from a statistical point of view, it's always been good and in something like cancer it works, we've learned a lot. From the point of view of exactly what I was talking about before, in terms of working with communities, and with populations, and with things that are really very, very hard to study and difficult to engage people in in a trial, we really have, and this has been very much an interest of mine, a need to establish new methodological approaches that we can use in order to rigorously study real-world settings, is really what it gets down to.

The other problem that we've had with many of the trials that have been done, even though they've been good, is substantial sample bias, and that gets back to the fact that we're just maybe not getting the

people that we really are interested in intervening with and having an impact on, and that just rounds back to the fact that we want to be trying to work in communities and interpret it back to individuals, and vice versa. So an example of a potential sample bias is that women are more likely to seek help, and therefore might end up actually in a randomized control trial when, in fact, we know that certain subpopulations, certainly of men, are very much at risk for suicide during different times in their life.

The next slide.

And this is also because – I'm going to talk about brief intervention. Ongoing outpatient treatment is not really for everyone. A lot of people feel like they've been there, done that. Still huge issues around stigma, and many people just feel like that's not what they want to do. In the military it can be that they certainly don't want to be seen going into a mental health facility. And it's just not something that's going to fit for everybody. And of those who do attend treatment, three months after hospitalization for an attempt, for example, 38% have stopped outpatient treatment. And so that's one reason that we have been very interested in the whole issue around follow up and about what happens when people engage in the kind of services like a crisis line or come into the emergency department. What happens after we send them home? And we know, too, that after a year about 73% of attempters will no longer be in any treatment at all.

So the next slide.

So that's why I've been involved with my clinical colleague in terms of doing some work in brief behavioral interventions and primarily looking at the effectiveness, and then, again, developing some of these new ways of examining the effectiveness. We know that after suicidal crisis, like for a suicide attempt, that's a period of elevated risk for three to six months. And, as I said, and just to reiterate, at-risk patients are very difficult to engage in outpatient psychotherapy, even while we know that there are psychotherapies that seem to be effective. And, again, it gets back to randomized control trials looking at people that actually are not populations that we are very, very concerned about, the populations that doesn't show up until they're really in trouble or imminently in danger of dying.

And some individuals, such as adolescents and young adults, have attitudes that are really inconsistent with long-term therapy, and certainly there are many young adults in the military, and this is, and we say (inaudible) a challenge.

So the next slide.

And, again, this is just a few things that this is why there is a reluctance to engage people. And why we would even turn to going to brief behavioral intervention.

And the next slide.

So we began a study of the VA's 24/7 crisis line. As I mentioned it was developed by Jan Kemp in 2007 and is in the VA Office of Mental Health. And this is a study of all veteran callers, regardless of the level for suicide, to VA's 24/7 crisis line. And I can tell you that at the time, as was mentioned, I was the Director of the Center of Excellence, and we were co-located with the crisis line in Canandaigua, New York, and we actually really didn't know when the crisis line was established because most callers to many community crisis lines are women, and women tend to seek help more. And we know that. And men can be very reluctant to seek help. And most veterans are male, and so that we really wondered, well, maybe this crisis line will get set up and nobody will call.

And that's not what happened at all. We had many, many callers, even the first week, much to everybody's surprise, and it's rapidly grown. They started out with – well, actually the very beginning was five responders on for 24/7 – I think I have that number right, but it wasn't very many. And now it's up to almost 300 call responders in the crisis lines. And that's where we have now focused our studies. The crisis line is still in Canandaigua, and I've been working with them and I'm going to just describe some of this very briefly.

So we wanted to – the other one that I'm going to talk about is also relevant to the kinds of things I've been talking about – is we've also been conducting a study of a brief intervention to reduce suicide and so about suicidal behaviors in veterans that we consider at moderate risk who are identified for suicide through as they come through VA emergency department. And by moderate risk I mean – and I'm going to give you some definitions a little bit later, but I'll give you that right now – is we consider that there has not been any suicide attempt but somebody actively had suicidal ideations. And those folks are very, very important. We consider that high-risk people oftentimes get hospitalized, but what do you do with those people that are at what we're calling moderate risk?

So the next slide.

Unlike VA's crisis line – I'm going to go back now to the crisis line and very briefly talk about what we're doing. Unlike other crisis lines, VA's crisis line provides follow-up service to consenting veterans. That's because Dr. Kemp also started a network of suicide prevention coordinators in the VA, and so there is that connection between when they call the crisis line to being referred, if they consent, to a suicide prevention coordinator in the VA. The other certainly unique part of the VA is that we have – many of you who are on from the VA know that the VA's had an electronic medical record for a very, very long time. It was really out at the forefront. And that means as an epidemiologist I can really study the whole issue about healthcare service utilization, follow up, and then, obviously, the potential for looking at the impact on long-term outcomes because a veteran enters into our system, then we can find out what those kinds of things look like that are difficult to obtain in community crisis lines.

And we did publish a paper on this that talked about the implementation and early utilization of the crisis line, it was then called the hot line, and has now been changed, was changed about three years ago I believe, from the suicide hot line for veterans to a crisis line, the 24/7 crisis line, and I think that reflects the emphasis, again, on expanding our reach into getting people early before they're imminently suicidal.

And the next slide.

So we have been funded, as I said, Dr. Gould is on this study and provides a huge contribution in terms of her areas in community crisis lines. And Dr. Cross and Dr. Tu are from the University of Rochester and I've worked with for many years. We are funded by a National Institute of Mental Health R34, as was mentioned before. The rationale for this study is really to provide us with some pilot data that would contribute to the development of a larger study on compliance fidelity and variation and delivery of mental health services within a very large healthcare organization, which VA is. And so this is, again, allowing us to do something that really can't be done in another setting, either in our nation or internationally.

Then we really wanted to look at mutable factors, (inaudible) things that we can have an impact on, that impact access, utilization, quality and outcomes associated with mental health services provided through VA's crisis line.

And I just want to point out the similarity to other crisis lines. VA's crisis line affords rapid access, especially during periods of high distress. And so that's very common to crisis lines, and so that obviously

someone who calls and is imminently suicidal, there is a rescue that follows, and that is an important part of that service.

The next slide.

So, the name of this grant is Outcomes and Callers to the VA's 24/7 Veterans Crisis Line, and that's just the reference for it, and we're, obviously, very grateful for the NIMH funding that's allowing us to do this work.

Next slide.

And part of what we're looking at is whether there's potential differences due to a number of factors, depending on the nature of conflicts that each of the different cohorts were involved in. For example, whether there are unique exposures for different groups of veterans, specifically the Vietnam veterans, World War II veterans, Korean veterans, and our current returning vets. So we want to see whether there's differences between them and calling the crisis line and whether those differences have an impact on whether they consent to getting help and engaging in care. And we also – and this is why I certainly brought up Dr. Nashira's work in Canada, and Dr. Gould has looked at this as well, the impact of responder behavioral characteristics that may have an impact on whether a veteran engaged in further care, and that simply means whether they are males versus females. In our case if the responder is a veteran, and those kinds of things, but also responder behaviors, and we certainly know that on a crisis line that's something that is going to vary, especially among the veterans crisis line with almost 300 responders.

The next slide.

So this just briefly – I'm just briefly going to go over this. It sums up what I have been saying, but these are – I think the things to focus in on the slide is the impact on outcomes, the things we're interested are deaths from suicide, attempts and reattempts, hospitalization for suicide behaviors, and engagement in ongoing safety planning process and overall reductions in psycho-social distress, and that gets back, again, to what happens when we send veterans who call back out into their communities where they're going to have the same challenges that many of them have had.

The next slide.

What is SAFEVET? I'm going to go over it again very briefly and targeting moderate risk veterans. The behavioral intervention is really based on safety planning but was adapted for veterans specifically. And really a very key component that we added was the structured telephone follow up after the ED visit.

The next slide.

So we were funded for three years by the VA Office of Mental Health. This type of study was recommended by a blue ribbon panel in 2007. And we have published those initial results in the *American Journal of Public Health*, where we talked about some fairly preliminary data, but it was promising at that time when we published it. We have now completed recruiting for that study and are now in the final analyses of looking at the entire cohort.

The next slide.

I want to emphasize here that veterans at moderate risk may often get hospitalized because there is no alternative, because there may be limited alternatives. And this is changing, but there may be limited

interventions with the VA in particular. So we were looking to see whether providing a safety net during what we think is a high-risk period before they get into outpatient care would have a difference.

Next slide.

And I just went over that, and so these were our hypothesis, just shown at the bottom, and I want to move over to some of our preliminary results.

Next slide.

These are just the inclusion criteria. I won't go over the inclusion and exclusion, I won't go over those specifically, so we'll go to the next slide.

And here's what our initial findings were. It was based on a number of veterans at that time, but we have about twice as many now at the end. And 93% - one of the things was very encouraging – 93% of the veterans agreed to receive the SAFEVET intervention. We looked at the mean days before they indexed, and the first follow up that we did made by an acute services coordinator who provided both services at the visit and then did the follow-up calls. And then we looked at whether they actually engaged in psychiatric services.

So the next slide.

And we also did a qualitative study to look at the acceptance of the SAFEVET intervention, which we thought was really, really important, so we interviewed 100 veterans that were in the SAFEVET program, and you can see the results here that 55% found it very helpful, 61% had actually used the safety plan to avert a crisis, a suicidal crisis. And the satisfaction was 69%. This was funded by a grant also through the VA Mental Health Quality Enhancement Research Initiative, or QERI. I think one of the real compelling things for me was when I found out that there were veterans who were telling the acute services coordinator that, in fact, they were helping their fellow veterans develop their own safety plan. And so our reach, it seemed to me, went farther than just those veterans that we were able to get into the study.

Next slide.

And this is just the satisfaction with the monitoring. Obviously there was very high satisfaction with the monitoring because they felt really cared for. The veterans helped like somebody was following up and not looking track for them. And that's sort of the bottom line of those results, and that has followed through in looking at our final results as well.

So the next slide.

That's just a few quotes from veterans. I'm going to move on here in just a minute, but it basically it's I think a lot of it was our active duty military and veterans, they are trained to be tough, and getting past that training that we purposely train them to do and to get them, then, to be able to say that they can reach out and get help I think is really very relevant to both the crisis line and to the kinds of programs that not only (inaudible) that as essentially a clinical demonstration project, but other programs that are being done in the VA that I don't have the time to go into today. So I think that this was, obviously, leads us in the direction of linking, again, the individual and the community. They're not separate.

If we can go to the next slide.

And I just want to provide this for some context. Dr. Barbara Stanley and Dr. Greg Brown were developing the safety planning intervention, and then they did do a veteran version that we and others, under the Office of Mental Health and Jan Kemp, have been using very widely in the VA.

So the next slide.

Okay, I'm going to switch gears here and talk about population-based approaches or going back to the community. Means restriction, restricting firearms. I'm going to talk about our work in the Air Force, and then finally if we have time I'll talk about some new work that we're doing based on some work a colleague has done uses sources of strength. And I may not have time for that, but we'll review that if we do.

So the next slide.

I'm going to pretty much not go into this, but means restriction has been shown as one effective way in the United Kingdom.

Next slide.

Most of that work has been done –

Next slide, please.

Most of the work actually has been done by Keith Haughton in the U.K. on means restriction, and that's variable because it certainly seems to work but also times there's means replacement, and so I won't go into that, but there's certainly important literature on that.

Firearms. There's some very limited evidence. We know there are social and political sensitivities. And I'll move on and just say that it's a difficult area to study the effectiveness.

Next slide.

So I'm going to move to the Air Force because I think certainly this is where a lot of work we've done has been to try to see whether population approaches can really change cultural norms and have an impact at the population level on rates of suicide. And so the two big things we started out doing is looking at epidemiological studies of risk and protective factors, but we've also looked at longitudinal studies of effectiveness of the implementation of a population-based comprehensive suicide prevention program, and I would certainly like to acknowledge Colonel Campise's contribution to this because the first work we did on actually measuring implementation, I worked with Colonel Campise and he was the one that really administered the first instrument to measure implementation. And it's been very exciting to be able to do that. It certainly has limitations, but on the other hand it's some of the – you know, there's not a lot of data at the population level of these kinds of very public health programs and how they're implemented across a very diverse population. Certainly the Air Force can be homogeneous, but it's also got a lot of heterogeneity to it as well.

And the next slide.

The Air Force program, as many of you may know, it was the earliest and currently still only program to show a reduction in rates over time, that is with some exceptions, which I will show you about. The leadership committed in 2000 in engaging with the University of Rochester to investigate whether reductions in rates starting in 1996, which was really basically right after the implementation of the program, were really responsible because there were a lot of questions at that time. Again, measuring the

impact of a population program is really challenging, and there weren't any models at the time of a population public-health kind of program for suicide prevention when the Air Force developed this program, and certainly the methods of approaching how you look at the effectiveness were really not there. And so one of the things we looked at first was to see whether there were alternative explanations for what was a very, very dramatic drop in suicide rates starting in 1996. And we have developed, because of our long collaboration with the Air Force, have continued our research and also with the funding from National Institute of Mental Health, to be able to – has allowed us to develop increasingly sophisticated methodology to examine the effectiveness of the program, and this work is ongoing.

The next slide.

I'm briefly going to talk about, I'm not going to go through each one of these, but there were some very key components, and one of the big things we think is the leadership involvement in the Air Force program that really actively supported the entire spectrum of suicide prevention in the Air Force community. I think the importance of this is certainly recognized by all of us now in suicide prevention, especially in the military and in the VA. But certainly when the Air Force, as I said, developed this program in 1996, that was really not known about regular messages coming out that would really encourage the Air Force community to fully engage in suicide prevention efforts.

And obviously formal military training, which continues to be important. Guidelines for commanders in terms of helping commanders know how to recognize early on somebody who is at risk and whether and how and when to get somebody into mental health services. It was really quite key.

Next.

Community preventive services I think was very important in terms of looking at community efforts, including training, a review policy that really, again, affects policy and the way things can be done in terms of protecting people who are suicidal but are in the military.

The next slide.

Trauma stress response was a part of the original program, and I think one of the things that I've always been very impressed about is what's called the integrated delivery system and the community action information board in which all helping agencies in the Air Force were really brought together, and still are, that really looked at these related outcomes, family violence, family advocacy program is at the table, tobacco cessation, substance abuse. Many folks that are early prevention in terms of childhood, intervening in families with young children. And all these things can really work together, we think, to achieve a synergistic impact on community problems and reduce suicide risk.

The next slide.

I'm going to quickly – I'm going to really kind of skip over there. The suicide event surveillance system, that's what the Air Force implemented and that has been replaced by the DoDSER, as many of you know, in terms of capturing the same data on all the services.

Next slide.

We published that study looking at related outbursts, outcomes, which is what we found was when you address suicide you also reduce the rates of domestic violence, homicide, and other kinds of adverse outcomes. And we were able to look at other things that might have explained the drop in suicide rates and to reject them, and that's the short story. So I'm just going to move on to the next slide.

The limitations of that was that we really didn't have any data on implementation, we hadn't looked at a couple of big things like history, historical rates, whether there'd ever been a similar drop. So I'll go to the next slide.

And I mentioned in 2004 Colonel Campise was really instrumental in the development of an instrument and the collection of implementation data, and we've been doing that since 2006 on an annual basis. In 2004, the rates of suicide actually spiked up, and it turned out to be a natural experiment.

The next slide. And I'm going to skip to the next slide. Uh, actually not. Yeah, this is fine.

Is that we did find when we looked historically that the Air Force, before the program the rates were higher except after implementation they continued to diminish. And then we also wanted to develop some target tools, which we did at the time, about using forecasting models.

I'm just going to go to the next slide, please.

And this is what we found. Basically, again, based on the fact that we actually had some data on implementation and could communicate that, the leadership in the Air Force made really every effort to make sure the program was being implemented as it had been intended, so what you can see in this slide is that there was this drop, it spiked up, and then it went back down, and we were able to measure the implementation, if we go to the next slide, which is totally not understandable, just at first glance. But basically what this says is this is the way we measured things, and in 2004, implementation was really often many of this core kinds of areas that we were interested in.

And, if you go to the next slide, when we measured it again in 2006, implementation was back up. And, again, I think that gets back to leadership's role in making sure that the importance of doing this was really well recognized and resulted in really a very dramatic drop again in the rates back down to what they had been after implementation of the original program.

Next slide.

So the conclusion from our studies so far, and we are continuing them, is that the Air Force is one model of suicide prevention. It's had (inaudible)sustainable results. And our work there showed that there's really evidence that the sustainability requires constant application of a high degree of program implementation and monitoring. And really more, I think very importantly, too, that the public health policy message that deaths from suicide can be reduced through a multilayered, overlapping approach, which is what the Air Force did, encompassing key prevention domains and monitoring compliance, is really critical for policymakers and clinicians in the U.S. and world wide. And communities can do this if there is the will to do this. It does certainly take a lot of will and a lot of recognition of bringing people together, both clinicians and public health scientists, to be able to figure out and adapt something like this overlapping approach for different populations. I'm not in any way arguing that the Air Force program was mapped one-on-one to any other population. But it's really the conceptual kind of model that we think actually may work if the will to do it in communities exists.

The next slide.

And so one of the things that we also include as the approach is promising and diverse, as I mentioned, diverse communities and organizations, because it may replace piecemeal approaches that either fail to demonstrate effectiveness or are just unsustainable. And I'm afraid that the suicide world is not the only world to see how prevention efforts can be not sustainable over time. It's a really critical question for those of us who are involved in prevention science, involved in evaluating and understanding

mechanisms, understanding why programs are, and interventions are, or are not effective. And we did publish this as well in the *American Journal of Public Health* in 2010.

Next slide.

So we now have moved on. We're still really doing much of the same thing but some new things.

I'll move on to the next slide.

And, as I mentioned, we've been now collecting implementation data for a number of years, and looking at, too, the relationship at the major command level, or the MAJCOM, and the base installation level, and thinking about, too, whether we need to have an impact on possible programmatic changes. Certainly the other things have come in that weren't in place when I first started studying the Air Force project was the two wars that started since that time.

Next slide.

I just want to mention very briefly a study that we did also on using our longitudinal data on the Air Force on psychopathology of suicide. And this was led by a clinical colleague of mine, Dr. Ken Conner, that looking at models for suicide with mental health disorders episodes as predictors. And we really found that because we could use the longitudinal data that we could look at using survivor models, three broad predictors, and also any substance abuse such as alcohol or drugs.

The next slide.

And the bottom line on this is that having an episode of any mood depression or anxiety or substance abuse as detected by the healthcare system, and I think that's what, really, we were able to look at that, increases the chance of suicide, and actually found that the risk of suicide is almost nine times higher for an individual the first year following the beginning of a mood episode compared to an individual who is not in an ongoing episode. And we found a similar hazard ratio, is like a ratio, not exactly for those of you who are familiar with this, but it can be interpreted in a similar way.

So the next slide.

We published that as well in *Suicidal and Threatening Behavior*.

Next slide.

Here is where I want to acknowledge all the collaborators we've had in the Air Force work and the different components. Certainly it starts off with Colonel David Litz (sp), who was the first suicide prevention manager. Colonel Wayne Talca (sp), Major Jill Side (sp), Colonel Campise, Colonel Flynn, Colonel Kent, and Major Mike McCarthy, and Major Kathryn (inaudible). The other person I want to acknowledge is Lieutenant Colonel Wendy Travis, who is really in charge of program evaluation in mental health in the Air Force and has been a very close collaborator in the most recent studies we've been doing.

On the (inaudible) side, I've been the PI on these studies, but my colleagues Eric Caine, Yeates Conwell, and Kenneth Conner, some of you may be familiar with who all are well known in the suicide research world have been really instrumental. And then of course our program analyst and the folks that do all our data management for us and provide that kind of support is IMS Government Solutions. And we, of course, wouldn't be able to do this work without them.

The next slide.

I also want to just acknowledge, we've been very fortunate to have pretty much continuous funding. It did start off with the Department of Psychiatry, and funding me to really actually go around to different Air Force bases and meet folks and really understand both the military culture and the data that was involved and to be able to really develop some very close collaborations which were on the previous slide.

We were funded next by the Army. And for those of you who know, Colonel Hogue was instrumental in helping us acquire that funding.

And then I got my first funding from NIMH in 2002. These were large, five-year grants, so the second one came in 2006 and overlapped, actually, with the first one somewhat.

Next slide.

We are very fortunate – oh, I want to acknowledge the Developing Center on Public Health and Population Intervention's to Dr. Caine, that was a center grant funded by NIMH that also supported our work in the Air Force.

And then this one is my most recent one that just got funded in July, and this is the title of it, Looking At Individual and Community and Organizational Factors for Suicide Risk in the Air Force. So we are very fortunate to be able to continue this collaboration, and very grateful to all of our collaborators and certainly to NIMH.

The next slide.

I just want to say this disclaimer that none of our funding agents were involved in design and conduct of any of these studies (inaudible) the collection management analysis and interpretation of the data or the preparation, review or approval of the manuscript. And our Air Force work has always been approved both by two IRBs. The IRB from the University of Rochester and from the Air Force IRB at Wilford Hall, and we get yearly approval to continue these studies.

And the next slide.

I have, I think, just enough time to briefly review something because I think I'm very excited about this work. I'll be very brief about it. And that, again, gets into changing cultural norms, but more at the individual level because I think it's getting close to integrating those kind of individual and population kinds of approaches. And that's the work based on Dr. Peter Wyman, and he's worked mainly in schools and colleges, but we've discussed really the potential for (inaudible) to other populations. And it really has to do with looking at the effectiveness of peer leaders and the findings that Dr. Wyman has demonstrated is essentially an increase – when you train peer leaders – and, again, these aren't peer counselors, they're different than peer counselors – they are peer leaders who can set – be a role model, and we think this might be a very good kind of model for other kinds of populations. But in schools, anyway, it most importantly, health seeking acceptability really increased and the effect size was (inaudible). And the perception that adults help suicidal peers was also increased, which was really important in this population, and the largest gains, actually, were among suicidal students, and I think that's what's really important here.

The next slide.

And just briefly, Sources of Strength itself promotes a healthy culture and norms through messaging and social networks. And one of the things we've done just recently is proposed something that would be an

adaptation, so we wouldn't be using Sources of Strength as it's been originally designed but the more conceptual framework around that whole thing and looking to see whether it can be adapted for a military culture.

The next slide.

This talks about – I'm going to skip this slide because this talks just about peer networks and how you identify peer leaders, and that's actually very interesting, but again, this get backs to the very first slides we talked about in terms of integrating all these kinds of things, or family support, mental health, friends, mentors, healthy activities, and spirituality and medical access. Again that gets back to bringing in the clinical and how we – once we identify people – how we keep them in care. And keep them engaged in care. Get 'em into care and get em' engaged in keeping them into care. I guess that's sort of the bottom line. And I think we only do that – I really, truly do – think we only do that by changing our community culture and our attitudes. And we've come a long way. I want to skip to the next slide. And I think I'll skip to the next slide because I want to make sure we get to the end of this.

Next slide.

And this just shows, actually they did the first – Dr. Wyman and his colleagues – did really one of the first, only randomized control trials of this and with very interesting results, but the real drawback was it wasn't large enough to test impact on suicidal behavior, which can be a drawback in all of our studies, both clinically and both at the population level, and it's something we really have to recognize and figure out how to address.

The next slide.

Again shows the gains – the large gains for suicidal students, which I think that even though these investigators didn't show an impact directly on suicide outcomes, that the fact that the largest gains for getting help were among suicidal students, I think is really, really important.

And the next slide.

That just gives you the basic things, but I really want to go right now to the last slide. Let's skip this one, this one, this one. That was recommendations. I want to mention there is a VA DoD *Practice Guidelines for Suicide Prevention*. I was going to summary some of that, but this is – you can – I believe you have been provided the website to go out and look at that and I would recommend that you do so. It would allow you to look more closely.

And if you go to the next slide, again, I'm not going to be able to fit the summarized in the VA DoD Practice Guidelines.

Next slide.

Very brief summary. I've talked about all of these things before, and so I'm going to skip to that. The big thing on this is that population rates in the U.S. have not decreased, and in some populations it's increasing.

And the way forward, I think I would be really remiss if I did not recognize the efforts of the National Action Alliance for Suicide Prevention, which is a coordination of national efforts to advance the field and really has engaged, developed, sponsored, and keeps going with multiple task forces and provides a lot of resources and really there's a lot of brain power there. And so I think there's hope.

All right, Dr. Knox, thank you so much for your outstanding presentation.

Now typically we would jump to this time and I would say to the audience, please type your questions into the question box. Unfortunately we are almost out of time, and rather than interrupting Dr. Knox, I wanted to allow her to be able to cover the full spectrum of the various aspects of suicide prevention that she had up there. So we will just go with three questions if time allows, and really the first one is going to be about the crisis line. And it was asking how the stress was measured from the beginning to the end of the stress call on the crisis line, that study that you did.

Great question. First let me go back to the study that Dr. Gould did in the community, which we essentially have adapted. And that is we have used the adaptation, for those of you that are familiar with the PAMS, it's the Profile and Mood States. The measure that's used in a clinical setting is, I believe, 34 items long, and Dr. Gould adapted it to 14 items which was worked in the work that she did in community crisis lines, and we have further adapted that for our efforts in VA's crisis lines, but it's a great question because it really does, again, measures distress, depression, anxiety, feelings of hopelessness, and those are, really, big components of it, and allows the responder to incorporate that into their intervention that they're doing when the caller calls a crisis line in a very natural way. And we have actually – we did training with the VA crisis line responders, and Dr. Gould was certainly a part of that and are engaged in adapting that for veterans specifically.

And, Kerry, there was a question about the study related to the follow-up for people who had a suicide attempt. It said, after the year, you mentioned that 73% are no longer in treatment.

Right.

What percentage should have stayed in treatment?

Well, I think that we would like everybody to stay in treatment, but at least for a certain amount of time, and that's why, again, I'd recommend that you go back to access the VA DoD guidelines that were just published because certainly they talk about that for different populations of individuals, high risk, moderate risk, and low risk, what that follow up should be and that engagement and care. So in the interests of time I will say that that's a perfect resource to go back to, and (inaudible), certainly with high-risk individuals, you want them engaged in care for up to a year.

Okay, great. Thank you. We are actually out of time. I just wanted to close with a comment. There was a question about the Army's Star Study, and I know that the primary PI for that is one of our mutual friends, Dr. David Jobes. So if there are people in the audience who are interested in that study, I would just encourage you to Google Dr. David J – O – B – E – S, and you can read a little bit about what he's produced and about that particular study.

And just in closing I would like to just thank you again, Dr. Knox. That was extremely informative, and I'm sure that people will be able to download your slides and benefit from them.

If you want to access the presentation and resource list for this webinar, please visit the DCoE website at D – C – O – E dot health dot mil slash webinars. An edited transcript of the closed captioning will be posted to that link. An audio recording of this webinar will also be a available as a downloadable podcast.

To help us improve future webinars, we encourage you to complete a feedback survey, and this link to the survey is available on the DCoE website.

I want to thank you for attending today's webinar. The next webinar will be entitled "Sexual Trauma, Sexual Harassment, and Sexual Assault in the Military," and is scheduled for October 24, 2013 from 1:00 to 2:30 Eastern time. And I really couldn't close without plugging some of the resources that are out there for tracking moods and treating PTSD, so I'd encourage you to go to T, and then the number two, health, H – E – A – L – T – H, dot org, where you can see some of our websites and some of the apps that we use in assisting people where it can combat the stigma of people not going into mental health but they can initiate their own treatment by learning more about their mood disorder or their PTSD, and then that can hopefully transition into appointments and outpatient treatments.

Again, Dr. Knox, thank you for your assistance today. Everyone out in the audience and those in Samoa who called in, thank you very much. Have a good day.

And this concludes today's conference. Thank you for participating. You may disconnect at this time.